

REMARKS

The Applicant thanks the Examiner for the careful consideration of this application.

Claims 1-29 are currently pending. Based on the foregoing remarks, the Applicant respectfully requests that the Examiner reconsider all outstanding rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103

(1) The Office Action rejected claims 1, 5, 6, 8-12, and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,817,756 to Carr et al. (“Carr”) in view U.S. Patent Application Publication No. 2005/0067218 to Bristow et al. (“Bristow”) and U.S. Patent No. 5,114,232 to Wilson (“Wilson”). Claim 1 is the independent claim. The Applicant traverses this rejection for at least the following reasons.

First, no reasonable combination of Carr, Bristow, and Wilson discloses or renders obvious “a top sheet having substantially linear characteristics . . . compris[ing] a layer of a metallic foam,” as recited by claim 1. The Office Action aligns the wire mesh 96 of Carr’s Fig. 6 with the claimed “top sheet.” The Office Action acknowledges that Carr’s wire mesh 96 is not a metallic foam, and does not address the claimed linearity. Instead, the Office Action asserts that it would have been obvious to substitute the metallic foam 35 of Bristow’s Figs. 3-6 for Carr’s wire mesh 96.

However, even if Carr’s wire mesh 96 were replaced with Bristow’s metallic foam 35, as suggested by the Office Action, the proffered combination still would not have “a top sheet having substantially linear characteristics,” as claimed. This is because Bristow discloses that the

metallic foam 35 has ***non-linear*** characteristics. For example, Bristow discloses that:

Changes of the grade of the layer of metal foam 35 of FIGS. 3 to 7 could produce different noise reduction characteristics. For example different grades of foam with different porosity would reduce different noise frequencies.

(See Bristow at ¶¶ 0019 and 0021.) As such, reducing different noise frequencies with different types of metallic foam 35 results in non-linear characteristics of the metallic foam 35.

Wilson does not remedy the deficiencies of Carr and Bristow. Accordingly, no reasonable combination of Carr, Bristow, and Wilson discloses or renders obvious “a top sheet having substantially linear characteristics . . . compris[ing] a layer of a metallic foam,” as recited by claim 1.

Second, the combination of Carr, Bristow, and Wilson proffered by the Office Action is improper, because Wilson teaches away from the combination of Carr and Bristow. The Office Action asserts that “Wilson discloses that it is well known to use a foam material in conjunction with a core material as claimed . . . this combination of structures [is] applicable to both metallic and plastic materials.” The Applicant disagrees, because Wilson teaches away from using a metallic material.

Referring to Fig. 4, Wilson states that “the facing sheet 14 and the cellular element 122 are made from compatible bonding ***thermoplastics*** material,” (Wilson at col. 5, ll. 53-55 (emphasis added)) and states further that “the thermoplastic component parts do not have the ***problem of metal*** galvanic corrosion.” (See Wilson at col. 5, ll. 17-18 (emphasis added).) Therefore, counter to the statement in the Office Action, the teaching of Wilson is ***not*** applicable to both metallic and plastic materials. Accordingly, Wilson’s teaching of the corrosion problems

Applicant: Sohan L. Sarin et al.
Appl. No.: 10/517,495

with metal would dissuade one of ordinary skill in the art from combining the teachings of Carr and Bristow. Therefore, the combination of Carr, Bristow, and Wilson proffered by the Office Action is improper.

The Applicant submits that claim 1 is patentable over Carr, Bristow, and Wilson for at least the reasons set forth above. Claims 5, 6, 8-12, and 17-19 depend from claim 1, and are patentable for at least the same reasons.

(2) The Office Action rejected claims 2-4 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Bristow and Wilson, and further in view of U.S. Patent No. 5,175,401 to Arcas et al. (“Arcas”). Claims 2-4 depend from claim 1, which, as demonstrated above, is patentable over Carr, Bristow, and Wilson. Arcas does remedy the deficiencies of Carr, Bristow, and Wilson. Accordingly, the Applicant submits that claims 2-4 are patentable over Carr, Bristow, Wilson, and Arcas.

(3) The Office Action rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Bristow and Wilson, and further in view of U.S. Patent No. 6,182,787 to Kraft et al. (“Kraft”). Claim 7 depends from claim 1, which, as demonstrated above, is patentable over Carr , Bristow, and Wilson. Kraft does remedy the deficiencies of Carr, Bristow, and Wilson. Accordingly, the Applicant submits that claim 7 is patentable over Carr, Bristow, Wilson, and Kraft.

Applicant: Sohan L. Sarin et al.
Appl. No.: 10/517,495

(4) The Office Action rejected claims 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Bristow, Wilson, and U.S. Patent No. 4,291,080 to Ely et al. (“Ely”). Claim 20 is the independent claim. The Applicant traverses this rejection for at least the following reasons.

First, no reasonable combination of Carr, Bristow, Wilson, and Ely discloses “a top sheet including a metallic foam layer and having substantially linear characteristics,” as recited by claim 20. As demonstrated above in subparagraph (1), Carr, Bristow, and Wilson fail to disclose a metallic foam layer having “substantially linear characteristics,” as claimed. Ely does not provide the missing disclosure or teaching. Accordingly, no reasonable combination of Carr, Bristow, Wilson, and Ely discloses “a top sheet including a metallic foam layer and having substantially linear characteristics,” as recited by claim 20.

Second, the asserted combination of Carr, Bristow, Wilson, and Ely is improper, because Wilson **teaches away** from the combination of Carr and Bristow, as demonstrated above in subparagraph (1).

The Applicant submits that claim 20 is patentable over Carr, Bristow, Wilson, and Ely for at least the foregoing reasons. Claim 21 depends from claim 20, and is patentable for at least the same reasons.

(5) The Office Action rejected claims 13-16 and 22-25 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Bristow, Wilson, Ely, and U.S. Patent No. 5,962,107 to Lowery et al. (“Lowery”). Claims 13-16 and 22-25 depend variously from independent claims 1

and 20, which, as demonstrated above, are patentable over Carr, Bristow, Wilson, and Ely. Lowery does not remedy the deficiencies of Carr, Bristow, Wilson, and Ely. Accordingly, the Applicant submits that claims 13-16, 20, and 22-25 are patentable over Carr, Bristow, Wilson, Ely, and Lowery.

(6) The Office Action rejected claims 26-29 under 35 U.S.C. § 103(a) as being unpatentable over *the six way combination* of Carr in view of Bristow, Wilson, Arcas, Ely, and Lowery. Claim 26 is the independent claim. The Applicant traverses this rejection for at least the following reasons.

First, no reasonable combination of Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses “metallic foam [that] is compressed,” as recited by claim 26. The Office Action aligns the cellular sound absorption material 20 and perforations 22 of Lowery’s Fig. 15 with the “metallic foam [that] is compressed” of claim 26. However, the sound absorption material 20 of Lowery is *not* compressed at the perforations 22. Instead, the perforations are *formed* in the *uncompressed* sound absorption material 20 by “needling, drilling, [or] water jet piercing.” (See Lowery at col. 4, ll. 22-28.)

In the Response to Arguments section, the Office Action states that “[n]o such compression of perforations is claimed.” The Applicant agrees. However, as stated above, the sound absorption material 20 of Lowery is not compressed, as claimed, because the perforations 20 are formed by “needling, drilling, [or] water jet piercing,” which is *not* the same as compressing the sound absorption material 20. (See Lowery at col. 4, ll. 22-28.) Carr, Bristow,

Applicant: Sohan L. Sarin et al.
Appl. No.: 10/517,495

Wilson, Arcas, and Ely fail to disclose the claimed “metallic foam [that] is compressed.”

Accordingly, no reasonable combination of Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses “metallic foam [that] is compressed,” as recited by claim 26.

Second, no reasonable combination of the *six references* Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses a “metallic foam [that] is compressed to satisfy flow and temperature *linearity requirements* of the acoustic liner,” as recited by claim 26 (emphasis added). The Office Action cites to Arcas at column 2, lines 13-17 for teaching the importance of a non-linearity factor in conjunction with the perforated sheet. However, Arcas does not disclose a “metallic foam [that] is compressed to satisfy flow and temperature linearity requirements.” Rather, Arcas discloses that the acoustic impedance is dependent on the resistance of a wire mesh 5A, 5B bonded to a perforated sheet 3, as shown in FIGS. 1-4. (See Arcas at col. 4, l. 67 to col. 5, l. 6.) The wire mesh 5A, 5B controls the linearity requirements, *not* the perforated sheet 3. Carr, Bristow, Wilson, Ely, and Lowery all fail to provide the missing disclosure or teaching of a “metallic foam [that] is compressed to satisfy flow and temperature *linearity requirements*” (emphasis added). Accordingly, no reasonable combination of Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses a “metallic foam [that] is compressed to satisfy flow and temperature *linearity requirements* of the acoustic liner,” as recited by claim 26 (emphasis added).

Third, no reasonable combination of the *six references* Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses a “metallic foam [that] is compressed to satisfy flow and temperature linearity requirements of the acoustic liner,” as recited by claim 26. The Office Action cites to Arcas at column 2, lines 13-17 for teaching the importance of a non-linearity factor. However,

Arcas does not teach *flow* and *temperature* linearity requirements, as claimed. Rather, Arcas only discusses linearity for *acoustic impedance*. (See Arcas at col. 4, l. 67 to col. 5, l. 6.) Carr, Bristow, Wilson, Ely, and Lowery do not provide the missing disclosure. Accordingly, no reasonable combination of Carr, Bristow, Wilson, Arcas, Ely, and Lowery discloses a “metallic foam [that] is compressed to satisfy flow and temperature linearity requirements of the acoustic liner,” as recited by claim 26.

Fourth, the asserted combination of Carr, Bristow, Wilson, Arcas, Ely, and Lowery is improper, because Wilson *teaches away* from the combination of Carr and Bristow, as demonstrated above in subparagraph (1).

The Applicant submits that claim 26 is patentable over Carr, Bristow, Wilson, Arcas, Ely, and Lowery for at least the foregoing reasons. Claims 27-29 depend from claim 26, and are patentable for at least the same reasons.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant, therefore, respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Applicant: Sohan L. Sarin et al.
Appl. No.: 10/517,495

Prompt and favorable consideration of this Response is respectfully requested.

Respectfully submitted,

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